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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

MAKI, STEVEN D

ART UNIT	PAPER NUMBER
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1733

DATE MAILED: 04/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/022,108

Applicant(s)

BOHM ET AL.

Examiner

Steven D. Maki

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8, 10-18 and 21-38 is/are pending in the application.
- 4a) Of the above claim(s) 26-37 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8, 10-18, 21-25, 38 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 012306.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

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1) Newly submitted claims 26-37 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons:

The invention original claimed is directed to using SPECIES A of metal carboxylate such as mixture of zinc fatty acid salts for the polar organic compound (see original claim 11, specification at page 6 lines 21-33, page 7 lines 1-18, especially page 7 lines 16-18) *whereas* new claims 26-37 are directed to SPECIES B of high HLB surfactant having specified HLB / molecular weight for the polar organic compound (see specification page 5 lines 27-32, page 6 lines 1-6). The species are independent or distinct because originally presented species A requires metal carboxylate such as a mixture of zinc salts whereas newly presented species B requires a surfactant having a specified hydrophilic-lipophilic balance. Currently, 1-8, 10, 12-18, 21-22, 24-25 and 38 are generic.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which depend from or otherwise require all the limitations of an allowable generic claim as provided by 37 CFR 1.141.

Since applicant has received an action on the merits for the originally presented invention (claim 11), this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 26-37 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b), and MPEP § 821.03.

2) Claim 38 is objected to because of the following informalities: On line 3, "polymers cement" should be --polymer cement--. Appropriate correction is required.

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3) The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Europe

4) **Claims 1-8, 10, 16-18, 21-22 and 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Europe (EP 9250) in view of Schulze (US 2721185).**

Europe discloses a process for forming a free-flowing (vulcanizable) composite particles comprising:

mixing elastomeric particles ("rubber") and water to form "latex";

providing a "cocktail" by mixing nonelastomeric particles and water and adding solvent to this mixture;

mixing the "latex" and "cocktail", coagulating, filtering and drying to obtain a free-flowing powder ("premix");

dry blending the free-flowing powder ("premix") with fillers and/or pigments.

See at least page 1 lines 9-12, page 6 lines 10-15. Europe describes suitable nonelastomeric polymers at page 4 lines 5-13.

Hence, Europe teaches a liquid state mixing step *and* a solid state mixing step of the rubber with filler and thereby substantially discloses the claimed invention except that Europe does not specifically recite using carbon black as the filler. However, it would have been obvious to one of ordinary skill in the art to use carbon black as the

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filler in Europe's process since Schulze teaches that carbon black is added to many vulcanizable elastomer mixes during compounding as a filler (col. 4 lines 20-21).

As to claim 1, it would have been obvious to one of ordinary skill in the art to add at least one "processing aid" to Europe's "latex" (e.g. directly or indirectly via a "cocktail") in view of Schulze's suggestion to add a "processing aid" (plasticizer / softener) such as fatty acids (polar organic compound) to a latex *before* solid state mixing (mixing in a Banbury mixer) to provide desired plasticizing action / softening of the rubber. See col. 1 lines 26-29, col. 4 lines 6-10, 45-66).

As to claims 2-6, note Europe's "cocktail". In any event: it would have been obvious to add a cocktail having the processing aid and a solvent in view of Europe's teaching to mix a liquid mixture with the latex and the above noted suggestion from Schulze's suggestion to add a plasticizer. As to heating (claim 3), it would have been obvious to heat the cocktail as claimed since it is taken as well known / conventional per se to improve dispersion in a liquid mixture using heat. As to claims 4-6, one of the additional plasticizers disclosed by Schulze is mineral oil. See col. 4 line 54.

As to claim 7, Europe teaches drying.

As to claim 8, it would have been obvious to mix within a mixer having a net mixing chamber volume of at least 75 L operated at a fill factor of at least about 50 depending on the desired amount product to be formed since (1) Europe teaches dry blending the free flowing rubber with filler and then forming a useful shape / article and optionally (2) it is taken as well known / conventional per se to conduct mixing in a mixer of desired size.

As to claim 10, one of the additional plasticizers disclosed by Schulze is fatty acid. See col. 4 line 54.

As to claim 16, it would have been obvious to shape and cure the composition in view of (1) Europe's teaching to form a useful article from the blend of rubber and filler and (2) Schultz's suggestion to form a tire tread from a vulcanizable composition comprising rubber and carbon black (co. 5 lines 36-48).

As to claims 17 and 18, the claimed amount of processing aid would have been obvious and could have been determined without undue experimentation in view of Europe's teaching to use 0.5-8 weight% elastomeric particles ("processing aid") or Schultz's suggestion to use 1-10 parts plasticizer (processing aid).

As to claims 21-22 and 24-25 (polymer cement comprising), note Europe's use of solvent to swell the elastomeric particles.

5) Claims 2-6 rejected under 35 U.S.C. 103(a) as being unpatentable over Europe in view of Schulze as applied above and further in view of Baranwal (US 3824206).

As to claims 2-6, it would have been obvious to one of ordinary skill in the art to use a processing aid as suggested by Schulze in a cocktail as claimed for Europe's process in view of Baranwal et al's teaching to facilitate dispersion of an additive in the water or solvent in which the rubber is dispersed by dispersing the additive in a small volume of water or solvent as is conventional in making up such mixes (col. 5 lines

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34-38). As to heating (claim 3), it would have been obvious to heat the cocktail as claimed since it is taken as well known / conventional per se to improve dispersion in a liquid mixture using heat.

6) Claims 11 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Europe in view of Schulze as applied above and further in view of at least one of Blow (Rubber Technology and Manufacture), Takaki et al (US 5006603) and admitted prior art (specification page 7 lines 16-18).

As to claims 11 and 23, it would have been obvious to one of ordinary skill in the art to use a mixture of zinc fatty acid salts as the processing aid (plasticiser / softener) in view of at the suggestion from at least one of Blow, Takaki et al and admitted prior art to use zinc salts as processing aid / softener wherein Blow suggests using zinc salts of fatty acids such as Aktiplast as processing aid / plasticiser for rubber compounding, Takaki et al suggests using softening agent such as fatty acids or fatty salts such as zinc stearate as softening agent (col. 19 lines 44-61) for a rubber composition for a tire, and the admitted prior art teaches that Aktiplast GT comprising a mixture of zinc fatty acid salts is a known processing aid per se. With respect to Aktiplast GT, it is noted that Blow suggests using Aktiplast in a rubber composition.

7) Claims 12-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Europe in view of Schulze as applied above and further in view of Lawson et al (US 5332810).

As to claims 12-15, it would have been obvious to use the claimed functionalized rubber as the rubber in Europe's process in view of Lawson et al's teaching of a

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functionalized rubber having a predictable molecular weight range for mixing with carbon black.

Paton et al

8) **Claims 1-10, 16-18, 21-22, 24-25 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Paton et al (US 2617782) in view of Schulz and Baranwal.**

Paton et al teaches mixing crude rubber, carbon black, vulcanizing and accelerating agents in a Banbury mixer. Hence, Paton et al teaches solid state mixing rubber and carbon black. Paton et al does not recite premixing the rubber with a processing aid.

Schulze teaches adding a "processing aid" (plasticizer / softener) such as fatty acids (polar organic compound), oils to a latex *before* solid state mixing (mixing in a Banbury mixer) to provide desired plasticizing action / softening of the rubber. See col. 1 lines 26-29, col. 4 lines 6-10, 45-66).

Baranwal discloses adding a processing aid (oil) to rubber in liquid form either as a latex or a solution before converting to solid rubber and then mixing with other ingredients. Baranwal also discloses a comparative example comprising: providing a solution ("cement") comprising solvent and styrene butadiene polymer ("rubber") having a low molecular weight with DSV 2.2; mixing the solution ("cement") with petroleum oil ("processing aid"); drying ("isolating") the solution ("cement") to obtain rubber comprising processing aid; mixing the rubber comprising processing aid with carbon

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black in a Banbury mixer ("solid-state" mixing the rubber comprising processing aid with carbon black) to obtain a dry mix. See col. 7 lines 7-20.

As to claim 1, it would have been obvious to one of ordinary skill in the art to add at least one "processing aid" such as fatty acids (polar organic compound) to a cement or latex comprising rubber and water or solvent, dry the resulting mixture to form a premix comprising rubber and the processing aid and then solid state mix the premix with carbon black in the Banbury mixer in view of (1) Paton et al's teaching to solid state mix rubber and carbon black in a Banbury mixer and (2) the suggestion from Schulze (col. 4 lines 5-, 45-67) and Baranwal (col. 2 line 7-26) to add a processing aid (e.g. fatty acid, oil) to a latex / solution comprising rubber before mixing in an Banbury mixer / internal mixer.

As to claims 2-6, it would have been obvious to one of ordinary skill in the art to use the processing aid in a cocktail as claimed in view of Baranwal et al's teaching to facilitate dispersion of an additive in the water or solvent in which the rubber is dispersed by dispersing the additive in a small volume of water or solvent as is conventional in making up such mixes (col. 5 lines 34-38). As to heating (claim 3), it would have been obvious to heat the cocktail as claimed since it is taken as well known / conventional per se to improve dispersion in a liquid mixture using heat.

As to claim 7, Schulz / Baranwal teach drying.

As to claim 8, it would have been obvious to mix within a mixer having a net mixing chamber volume of at least 75 L operated at a fill factor of at least about 50 depending on the desired amount product to be formed since (1) Paton et al teaches

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mixing the rubber and carbon black in a Banbury mixer and optionally (2) it is taken as well known / conventional per se to conduct mixing in a mixer of desired size.

As to claim 10, one of the additional plasticizers disclosed by Schulze is fatty acid. See col. 4 line 54.

As to claim 16, it would have been obvious to shape and cure the composition in view of Schultz's suggestion to form a tire tread from a vulcanizable composition comprising rubber and carbon black (co. 5 lines 36-48).

As to claims 17 and 18, the claimed amount of processing aid would have been obvious and could have been determined without undue experimentation in view of Schultz's suggestion to use 1-10 parts plasticizer (processing aid).

As to claims 21-22, 24-25 and 38, note that Schultz suggests using rubber in liquid form, either as a latex or a solution (col. 2 lines 6-26).

9) Claims 11 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Paton et al in view of Schulz and Baranwal as applied above and further in view of at least one of Blow, Takaki et al and admitted prior art.

As to claims 11 and 23, it would have been obvious to one of ordinary skill in the art to use a mixture of zinc fatty acid salts as the processing aid (softener) in view of at the suggestion from at least one of Blow, Takaki et al and admitted prior art to use zinc salts as processing aid / softener wherein Blow suggests using zinc salts of fatty acids such as Aktiplast as processing aid / plasticiser for rubber compounding, Takaki et al suggests using softening agent such as fatty acids or fatty salts such as zinc stearate as softening agent (col. 19 lines 44-61) for a rubber composition for a tire, and the admitted

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prior art teaches that Aktiplast GT comprising a mixture of zinc fatty acid salts is a known processing aid per se. With respect to Aktiplast GT, it is noted that Blow suggests using Aktiplast in a rubber composition.

10) Claims 12-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Paton et al in view of Schulz and Baranwal as applied above and further in view of Lawson et al.

As to claims 12-15, it would have been obvious to use the claimed functionalized rubber as the rubber in Paton et al's process in view of Lawson et al's teaching of a functionalized rubber having a predictable molecular weight range for mixing with carbon black.

Remarks

11) Applicant's arguments filed 12-2-05 and 1-23-06 have been fully considered but they are not persuasive.

Applicant argues that one skilled in the art would not have chosen to substitute the non-elastomeric materials set forth on page 4 of Europe with one of the materials, particularly fatty acids or salts thereof, set forth in column 4 of Schultze. This argument is irrelevant since the issue is whether or not it would have been obvious to add a processing aid to Europe's latex *instead of* whether or not it would have been obvious to substitute Europe's non-elastomeric materials with fatty acid or salts thereof.

Applicant argues that Europe teaches against "softeners, tackifiers, and plasticizing substances" because Europe discloses that the non-elastomeric particles are "relatively hard". This argument is not persuasive since (1) Europe teaches toward

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intimately associating the non-elastomeric particles with the elastomeric particles (page 2 last three lines) and in particular teaches depositing the non-elastomeric particles on the elastomer to form composite particles (page 3 lines 1-3, 15-17, page 6 lines 10-15) and (2) Schultze, which discloses that the vulcanized liquid polybutadiene plasticizers can be "fairly tough, rubbery materials" (col. 3 lines 4-50), teaches that the plasticizers soften the vulcanizable elastomeric material and improve the tack of elastomers. One of ordinary skill in the art would have desired such softening and increased tack of the elastomeric material since Europe teaches depositing the non-elastomeric particles on the elastomeric particles instead of using non-tacky elastomeric particles to prevent deposition of the non-elastomeric material on the elastomeric material.

Applicant argues that there is no teaching to add other softeners into the composition of Europe. In particular, applicant argues these material increase tack and would not benefit the composition of Europe when the goal of Europe is to modify the elastomeric particle so as to prevent their agglomeration and/ compaction upon storage. This argument is not persuasive since Europe obtains the modified elastomeric particle by encapsulating the elastomeric particle with the non-elastomeric material. In other words, Europe strongly desires joining the nonelastomeric material to the elastomeric particle such that the elastic material is substantially encapsulated. One of ordinary skill in the art would readily understand that increasing the tack of the elastomeric particles would facilitate the joining desired by Europe. One of ordinary skill in the art would also understand that if the elastomeric particle is not tacky, then the nonelastomeric material

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cannot join to the elastomeric particle so as to prevent substantial encapsulation of the elastomeric particle as desired by Europe.

Applicant argues that Lawson cannot be logically combined with Europe and Schultz since Lawson teaches anionically synthesizing monomer with an organic solvent whereas Europe 250 and Schultz relate to latexes. This argument is not persuasive since Schultz suggests using elastomeric material which has already been polymerized (e.g. page 7 lines 15-17), which corresponds to the resulting elastomeric polymer of Lawson obtained for example by coagulation and drum drying as explained at col. 13 lines 29-32.

With respect to applicant's comments on Patton, Schultz and Baranwal motivate one of ordinary skill in the art to add a processing aid (e.g. fatty acid, oil) to a latex /solution before mixing in a Banbury mixer so as to facilitate Patton's process of mixing crude rubber *and* carbon black in the Banbury mixer.

12) No claim is allowed.

13) Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven D. Maki whose telephone number is (571) 272-1221. The examiner can normally be reached on Mon. - Fri. 8:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (571) 272-1226. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Steven D. Maki
April 2, 2006


STEVEN D. MAKI
PRIMARY EXAMINER
4-3-06